

Faculty of Education

Lesson Plan Template

|  |  |  |
| --- | --- | --- |
| **Subject / Course:** Mathematics | **TC Name:** Yana Ma | |
| **Grade Level:** 8 | **Date:** Sept 13, 2010 | |
| **Topic:** Integer Division | **Time of Class:** 40 minutes | |
| **AT Name:** Mary Miller | **Room # / Location:** | |
| **1. Curriculum Expectation(s) and Goal(s) for the Lesson** | |  |
| 1. **Expectations**:  |  | | --- | | *Operational Sense*   1. Represent the multiplication and division of integers, using a variety of tools; 2. Solve problems involving operations with integers, using a variety of tools | | | |
| 1. **Goal(s) for the lesson:**  |  | | --- | | In the end of the lesson, students will be able to:   1. Identify the signs of quotient when doing positive and negative integer division with the help of number line 2. Divide integers like: 10/5, (-10)/5, 10/(-5), (-10)/(-5) using number line | | | |
| **2. Pre-assessment and Accommodations/Modifications** | | |
| |  |  | | --- | --- | | **Pre-assessment: (***State the issue)* | **Accommodation/Modification:** *(how will you adapt your lesson?)* | | **Academic Needs:** *(what will you do with the students who finish early or who cannot finish or understand the lesson***?)**  **Behavioural/Social/Emotional Needs:** *(Do you have students who are easily distracted, have short attention span, don’t participate or talk out constantly?)*  **Physical Needs:** *(do you have students with allergies, difficulty seeing or hearing, or with mobility issues?)*  **Diversity Needs:** *(do you have any ESL students? Are there cultural or language issues?)* | Give more questions for the students who finish early  Give fewer questions to students who have difficulty completing the work  -Allow students to work in pairs  -Be selective in the questions assigned to students who have difficulty  Ensure students who are easily distracted are asked to participate in activities  Stress the importance of cooperation-this is not a competition  Pair up with somebody who can help | | | |

1. **Learning Environment**

|  |
| --- |
| The Smart Board will be next to the teacher.  Students will be required to clear their desk at the beginning of the lesson.  After Minds On activity, students will be asked to group together to guess the rules  After direct instruction, students will work individually with their own number line sheets at the beginning - where they can see the SMART Board, and then pair together to check each other’s understanding  Before group work students will be asked to form the table into 5 groups of 6 people  During group activities and seat work the teacher will circulate throughout the classroom.  All handouts and required materials will be ready at the teacher’s desk(to the right of the teacher) |

1. **The Overview (Agenda) for your lesson:**

|  |
| --- |
| 1. Minds on( 7 minutes) 2. Group discussion(5 min) 3. Direct instruction(8 min) 4. Pair work (3 min) 5. Group role play (5 min) 6. Class discussion- using Clicker to check students’ understanding (3 min) 7. Consolidation-using the Frayer Model (5 min) |

**5. Resources and Materials for your class**

|  |
| --- |
| 1. Smart board 2. Clicker set, make sure they work 3. Teacher’s laptop 4. Number line sheet 5. 5 chart papers 6. 6 coloured markers 7. Frayer’s Model on paper 8. Pencils (students have their own pencils) 9. Grade 8 Math Textbook 10. Internet |

1. **Content, Teaching Strategies, for Lesson**

|  |  |  |
| --- | --- | --- |
| ***Time*** | ***Teaching or***  ***Assessment Strategy*** | ***Detailed Description*** |
| *7 min.* | *Introduction* | 1. **(before class) Preparation**  * Before the start of the lesson, the teacher will connect the clicker receiver and run the software on the laptop with the presentation ready to display * Before the start of the lesson, the teacher will connect Smart Board, projector, laptop and run the software on the laptop with the presentation ready to display * Make sure to wait 30 seconds before I call on a student to answer  1. **Transition (1 minute)**  * The teacher will get the class attention ( if you can hear me, clap one..., 1,2,3, all eyes on me) * The teacher will ask the students to clear their desks in 40 seconds( use Smart Board to show the time) * Students in the first and third rows will be required to turn their desks around to form 5 groups of 6 * The teacher circulates and helps students if needed * The teacher will write the agenda on the Smart Board but without writing the topic  1. **Minds On/Hook (6 minutes)**  * The teacher will get class attention(can I have your attention please) * The teacher will ask students to use the following poem to review the sign rule for integer multiplication   Please decode this poem into math rules for multiplication and division   Hate = negative   Love =positive   If you Love to Love then you Love.  (This means a positive times a positive equals a positive)   If you Love to Hate then you Hate.  (This means a positive times a negative equals a negative)   If you Hate to Love then you Hate.  (This means a negative times a positive equals a negative)   If you Hate to Hate then you Love  (In other words, a negative times a negative is a positive)   * The teacher will review the following questions with students: 2x5, 2x(-5), (-2)x5, (-2)x(-5) * The teacher will ask the class to guess how to solve the problem: 10/2, 10/(-2), (-10)/2, (-10)/(-2) * The teacher will inform the students that the topic is ”integer division” |
| *16 min* | *Instruction*  *Direct Instruction*  *Cooperative learning* | 1. **Transition( 1 minute)**  * The teacher will ask each group to appoint a reporter to share the group’s guess with the rest of the class  1. **Group Discussion( 5 minutes)**  * The teacher will ask students to discuss in their groups their guess * The teacher will circulate and observe students discussions and interactions * Assessment opportunity: the teacher will assess students cooperation and communication skills * The teacher will obtain the class attention (light off and on) * The reporter from each group will be required to share the group’s guess with the class * Anticipated guess: 10/2=5, 10/(-2)=-5, (-10)/2=-5, (-10)/(-2)=5 * The teacher will ask student why they think the quotient should be positive or negative * Anticipated answer: positive divide by positive is positive, positive divide by negative is negative, negative divide by positive is negative, negative divide by negative is positive  1. **Transition(1 minute)**  * The teacher will explain the next activity will be using number line to decide the quotient sign * The teacher will number the students in each group and ask number 1 in each group to get the number line paper for each group member  1. **Direct Instruction(8 minutes)**  * The teacher will draw a number line on the SMART Board and have the students follow along * The teacher will explain that when using a number line, all calculations are simply walking forward or walking backward from number zero with such step size (e.g. -10/2, need to decide which direction the person needs to walk to—here is forward because 2 is positive, what’s the step size—here is 2, and how many step size will make him end up at -10—here is 5). * The teacher will explain the number of step sizes is the absolute quotient, and the direction that the person is finally facing to is the quotient sign (e.g. -10/2, the person takes 5 steps to end up at 10, and at 10, he is facing the negative end of the line, so the quotient sign is negative, so the quotient is -5) * The teacher will demonstrate solutions for integer problems with number lines, making sure the students are following along with their number lines * The teacher will have the students come up to use the number line on the SMART Board to solve a couple sample problems, for example: 10/(-2), (-10)/(-2)  1. **Transition(1 minutes)**  * The teacher will ask students to pair up with their shoulder partner for this activity * The teacher will suggest that one person reads the problem while the other person draw the person the number line and count how many steps the person needs to walk forward or backward to end up at dividend, and which direction the person is facing to at dividend |
| *12 min* | *Application*  *(Assessment)*  *Pairs-Check*  *(Assessment)*  *Cooperative learning* | 1. **Pair work- application(3 minutes)**  * In this activity, students will be required to apply what they’ve learned from the teacher demonstration * Students, working in pairs, will be asked to follow the steps explained earlier to solve integer division: 8/4, -8/4, 8/(-4), (-8)/(-4) * Assessment opportunity: the teacher will circulate and assess * Students use of number line * Students method of calculating the quotient signs * Students communication skills  1. **Group Role Play(5 minutes)**  * The teacher will explain the next activity: role play the walker on number line to decide the quotient sign * Every group will find an abstract number line on the floor in different sections of the classroom * In each group, one student will be asked to be the person on the number line and step forward or backward according to the group discussion * Assessment opportunity: the teacher will circulate and assess * Students understanding of the use of number line * Students communication skills and team work skills  1. **Transition(1 minute)**  * The teacher will get the attention of whole class (light off and on) * The teacher will explain that clicker will be used to assess the students’ understanding of integer division * The Teacher hands out clickers * The teacher will connect clicker receiver with laptop and set up the software  1. **Class understanding assessment(3 minutes)**  * The teacher will display questions on Smart Board and ask students to use clickers to answer questions * The teacher will assess the whole class’s understanding of using number lines |
| *5 min* | *Consolidation*  *Using a graphic organizer for assessment* | *Consolidation*   1. **Transition(1 minute)**  * The teacher will ask the person with the longest hair in each group to come to the teacher’s desk and get a chart and a marker for their group  1. **Frayer Models (4 minutes)**  * Each group will work together to define using number line to do dividing rules of integer * If the group finishes they will exchange models and perform a “pairs check”. Students will put their names on their model and hand it in before leaving the class |

**7. Reflections: To be completed after you have taught the lesson.** (In this section, you will assess the effectiveness/ineffectiveness of your lesson and of your teaching.

**a) Effectiveness of your lesson***.*

*Include 2 or 3 lesson elements that were effective/ineffective. What went well, what could have gone better? How was the pacing of your lesson? Were your teaching strategies effective? Were all students engaged? Did the students accomplish your goal? Did your assessment strategies work?*

*What do you need to learn more about? What do you need to work on when planning your next lesson? Should you discuss something with your AT or your FA?*

|  |  |  |
| --- | --- | --- |
| **What was effective/ineffective about your lesson** | **How do you know?** | **What steps will you take to improve?** |
|  |  |  |
|  |  |  |
|  |  |  |

**b) Effectiveness as a Teacher:**

*Include 2 or 3 comments about your effectiveness as a teacher or areas that could be improved. You could comment on your ability to manage the class, use higher order questions, your questioning technique and your ability to have the participation of all students. How effective was your oral and/or written communication? Were you able to adjust your lesson plan as required?*

|  |  |  |
| --- | --- | --- |
| **What was effective/ineffective about you as a teacher?** | **How do you know?** | **What steps will you take to improve?** |
|  |  |  |
|  |  |  |
|  |  |  |